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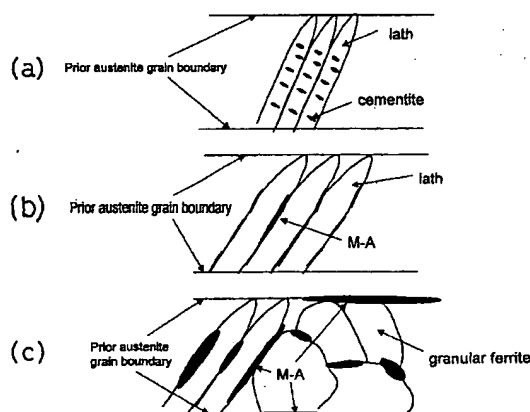
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(54) Title: STEEL PLATES FOR ULTRA-HIGH-STRENGTH LINEPIPERES AND ULTRA-HIGH-STRENGTH LINEPIPERES HAVING EXCELLENT LOW-TEMPERATURE TOUGHNESS AND MANUFACTURING METHODS THEREOF



(57) Abstract: Ultra-high-strength linepipes having excellent low-temperature toughness manufactured by welding together the edges of steel plates comprising C of 0.03 to 0.07 mass%, Si of not more than 0.6 mass%, Mn of 1.5 to 2.5 mass%, P of not more than 0.015 mass%, S of not more than 0.003 mass%, Ni of 0.1 to 1.5 mass%, Mo of 0.15 to 0.60 mass%, Nb of 0.01 to 0.10 mass%, Ti of 0.005 to 0.030 mass%, Al of not more than 0.06 mass%, one or more of required amounts of B, N, V, Cu, Cr, Ca, REM (rare-earth metals) and Mg, with the remainder consisting of iron and unavoidable impurities and having a (Hv-ave)/(Hv-M) ratio between 0.8 and 0.9 at  $2.5 \leq P \leq 4.0$ , wherein Hv-ave is the average Vickers hardness in the direction of the thickness of the base metal and Hv-M is the martensite hardness depending on C-content ( $Hv-M = 270 + 1300C$ ) and a tensile strength TS-C between 900 MPa and 1100 MPa;  $P = 2.7C + 0.4Si + Mn + 0.8Cr + 0.45(Ni + Cu) + (1 + \beta)Mo - 1 + \beta$  ( $\beta = 1$  when  $B \geq 3$  ppm and  $\beta = 0$  when  $B < 3$  ppm).



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# INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER  
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According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, CHEM ABS Data, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	abstract	15-22
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A	tables 1-4 -/-	1-14

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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